



TRMM Flight Operations Monthly Status Review (MSR)

May 29, 2002



FOT Subsystem Overview

- Operations Status
 - Flight Ops Summary - Lou Kurzmiller
 - Electrical/Thermal - Dave Sepan
 - RCS - Dave Sepan
 - Power & Deployables - Justin Knavel
 - ACS & FDS / C&DH - Mark Fioravanti
 - RF / Comm - Nega Berhanu
 - LIS - Nega Berhanu
 - CERES & VIRS - Mark Fioravanti
 - TMI - Dave Sepan
 - PR – Justin Knavel
 - Ground System – Justin Knavel
 - Upcoming Activities – Justin Knavel



Flight Operations Summary

- Supported 556 SN events in May
 - 1 Yaw Maneuver; now +X
 - 5 Delta-V Maneuvers
- No Anomaly or Event Reports, 3 Late Acqs



Flight Operations Summary

- Notable Events
 - Continued support of ERBS EOL activities.
 - Supported various testing/implementation for TRMM
 - » PSIB EBV patch
 - » Xpndr Center Freq testing/implementation
 - » SA +/- 1 Deg (Feathering) & Pwr configuration to 24 Amps (batt)
 - » 2000 Epoch Mag Field Patch
- FOT stable in May. Did obtain TRMM-experienced engineer under temporary development assignment.
- 3 Console Analysts completed certification training.
- Bowie State intern graduated. To assume full-time status.



Thermal / Electrical Subsystems

- The Thermal subsystem remains nominal
 - No operational issues since arrival at 402.5 km

- The Electrical subsystem remains nominal
 - No operational issues since arrival at 402.5 km



RCS Subsystem

- RCS performed 5 successful Delta-V maneuvers (#394 - #398)
 - Current fuel remaining is 254 kg by the mass flow method.
 - Current fuel remaining by the PVT method is 233 kg.
 - Current Precision Pressure Transducer level is down to 164.6 psia.
- RCS subsystem is in “blow down” mode and is no longer pressure regulated.
- The current EOL estimate at 402.5 km is June 2003 using 157 kg of fuel as a baseline for controlled re-entry.
- Upcoming Events
 - Continue to review and train with Delta-H procedure, EOL scripts, and the “one-shot” procedure.
 - Review all required steps for a 30+ minute Delta-V maneuver and test with the simulator.



Power Subsystem

- Open issues
 - Essential Bus Voltage Monitor Backup was loaded on 02/121 (May 1st).
 - » Only issue: TSM 42 thresholds are set too high.
 - Solar Array Feathering test is planned for Thursday, May 30th.
 - » Load ACS Table 76 for Solar Array tracking between +/-1°.
 - » Configure Power System for CM_3 (24 A per Battery).
 - » Run for 1 or 2 orbits then configure back to nominal operations.
 - Solar Array off-pointing
 - » Test Delta V and Yaw maneuvers with simulator
 - » Longer duration on-board test



Deployables Subsystem

- Solar array drives and HGA continue to operate nominally.



ACS Subsystem

- ACS is performing nominally.
- FSW completed testing on the Mag. Field patch.
 - FOT will begin testing and uplink the patch within the next couple of weeks.
- SA Feathering activities are being planned.
 - Tracking will be limited to ± 1 degree.



FDS/C&DH Subsystems

- UTCF/FS Status;
 - One UTCF Adjustment was performed on 02-134 (May 14th) and another is scheduled for 02-150 (May 30th).
 - » Current UTCF value is 31535996.806578 sec
 - No FS Adjustments were performed.
 - » Current FS value is x'7EA'.
- Planned RTS Changes
 - Nominal TDRS AOS RTS format changes to allow easier modification as DS storage status changes, and to simplify transponder offsets if required.
 - Initially will be performed with RTSs 65 - 68, other AOS RTSs may also be converted later.
- TS Task Telemetry Filter patch successfully installed on 02-115 (Wed., May 1st) to RAM and EEPROM.



RF Subsystem

- 3 Late Acquisitions (#118-120) occurred since last MSR.
 - GLA #118: Occurred on 02-139 (May 19) during the 2026z 171/SA2 event. Acquisition was 61 seconds late. 1 GCMR was sent; all data was recovered.
 - GLA #119: Occurred on 02-141 (May 21) during the 0523z TDW/SA2 event. Acquisition was 61 seconds late. No GCMR was required; all data was recovered. TTR# 24348
 - GLA #120: Occurred on 02-146 (May 26) during the 1705z 171/SA1 event. Acquisition was 79 seconds late. 1 GCMR was sent; all data was recovered.

- No RF Event Reports this month.



RF Subsystem (cont'd)

- Frequency offsets (monthly average)
 - Transponder #1 = + 731.788 Hz
 - Transponder #2 = - 97.936 Hz
 - The Transponder # 2 offset command is now executed prior to every Transponder 2 event by S/C RTS 60 which was uplinked on 02-143 (May 23rd).
 - S/C RTS 59 was also uplinked on 02-143 (May 23rd). This RTS will be used to perform the Transponder #1 offset in the near future.



LIS Instrument

- 2 Routine MSFC real-time command request were performed on 02-121 (May 1st) and 02-143 (May 23rd) to reduce packet sequence errors.
- No open issues



CERES/VIRS Instruments

- **CERES.**
 - Powered OFF.
- **VIRS**, continues to operate nominally.
 - Two sets of VIRS Solar Calibrations were performed on 02-128 (Wed., May 8th).



TMI / PR Instruments

- No Open Issues with the TMI instrument

- No Open Issues with the PR instrument



Ground System / Security

- Backup router tests – next month



Upcoming Activities

- 0-2 Months
 - Perform SA Feather (+/- 1°) Test
 - Perform remaining FSW revisions due to new Kalman Filter mode of operations and Boost activities
 - » 2000 Epoch Magnetic Field Patch
 - » Table 51 DSS Tolerance Versions
 - » Table 54 Update for Roll/Pitch/Yaw to 15°/8°/8°
 - Place remaining permanent table / patch changes into EEPROM
 - Select which Trending system to obtain / implement for MOC upgrade. Obtain GMSEC recommendation.
 - Support finalization of TRMM End of Life and Reentry Plan
 - Perform SA 55° offset long-duration test



Upcoming Activities

- 2-3 Months
 - Install new TDRS HGA AOS RTSs
 - Begin implementing new MOC trending system
 - Continue trade studies for upgrading other MOC ground system and software components
 - Participate in End of Life Plan review(s)
 - End Of Life Plan Testing, and Simulations
 - Continue to close open CCRs, MOCRs, and MSR Action Items